

A microwave digestion technique for the rapid dissolution of oils and liquid scintillation cocktails and the leaching of soil hazardous wastes

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Abstract:

An open vessel microwave digestion procedure for the rapid dissolution of oils and liquid scintillation cocktails and the leaching of soils has been developed. As much as 1 g of oil or liquid scintillation cocktail is completely digested in less than about 1 hour and the dissolution requires minimal reagents. The organic samples are digested sufficiently to yield sources suitable for gross alpha–gross beta measurement via gas proportional counting. As much as 1 g of soil is sufficiently leached in about 30 minutes to yield samples suitable for gross alpha–gross beta measurement. Tests with samples of NIST Peruvian blank soil individually spiked with ^{241}Am , ^{90}Sr , or ^{239}Pu indicate that nearly 100% yield is achieved.